

Lab refraction p45-46

formal lab report

use spreadsheet for a scatterplot graph of $\sin\theta_i$ vs $\sin\theta_r$

type `"=Sin(A2*3.14159/180)"` to calculate the sine of the item in cell A2

click on the corner and drag down

drag on the y data

skip uncertainty bars for now

right click on the column you want to use for y-data, then hold ctrl then drag on the x-data

right click on data points and insert trendline and display on chart

change the equation from $y=mx+b$ to

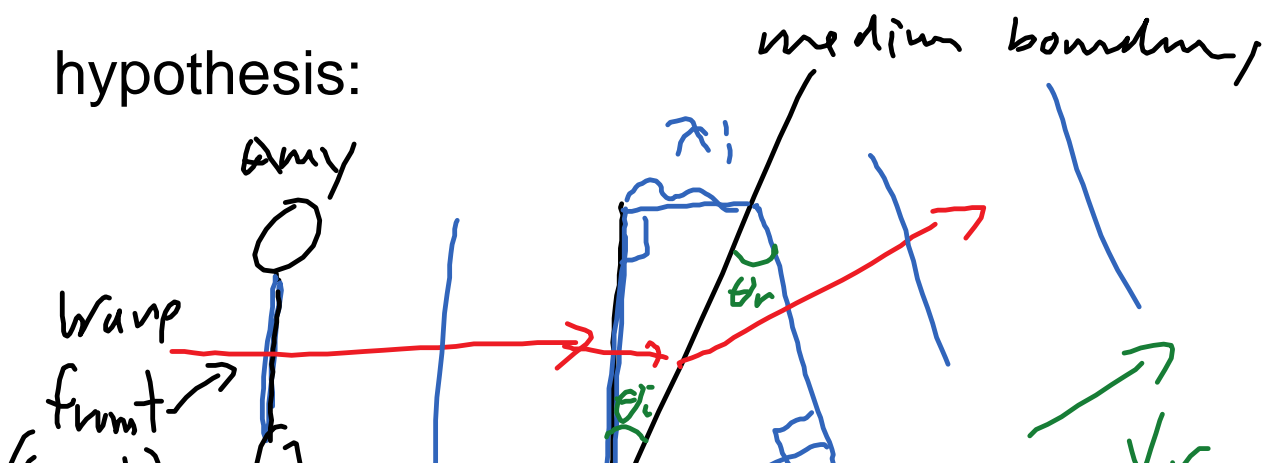
$$\sin i = 0.77 \sin r + 0.12$$

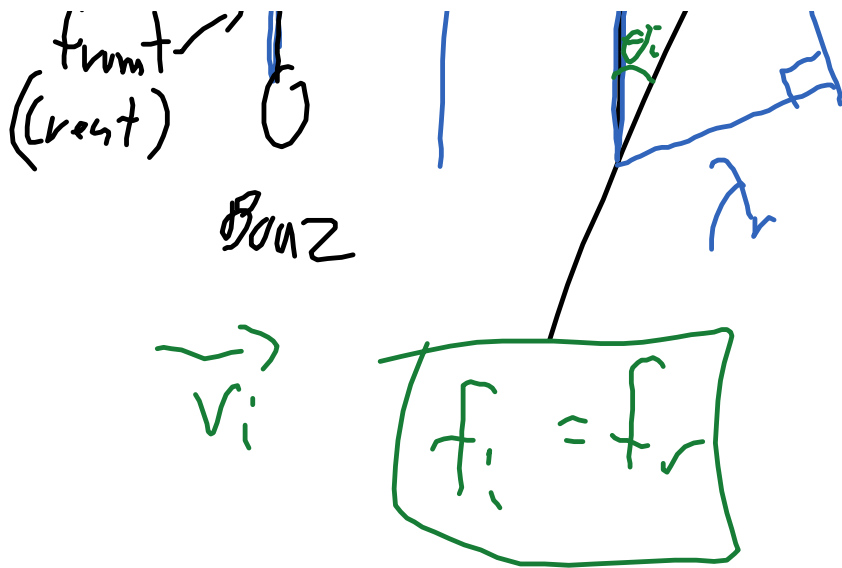
print and staple to the end of your report that includes

purpose, hypothesis, procedure, observation, analysis (do the questions in lab manual)

conclusion and sources of uncertainty

hypothesis:





$$\sin \theta_i = \frac{\lambda_i}{h}$$

$$\sin \theta_r = \frac{\lambda_r}{h}$$

$$\frac{\lambda_i}{\sin \theta_i} = \frac{\lambda_r}{\sin \theta_r} \leftarrow h = h$$

$$\lambda_i = \frac{v_i}{f} \quad \lambda_r = \frac{v_r}{f}$$

$$\frac{v_i / \cancel{f}}{\sin \theta_i} = \frac{v_r / \cancel{f}}{\sin \theta_r}$$

$$\boxed{\frac{v_i}{v_r} = \frac{\sin \theta_i}{\sin \theta_r}}$$

$c = v_{\text{light}} = 3.00 \times 10^8 \text{ m/s}$ \leftarrow big in vacuum
 ... of refraction $n = \frac{c}{v}$ \leftarrow vacuum

index of refraction $\left[n = \frac{c}{v} \right]$ \leftarrow vacuum
 \leftarrow medium

1.33 for water
1.5 glass